

Message

From: Greg Kester [gkester@casaweb.org]
Sent: 4/17/2014 7:43:12 PM
To: Fondahl, Lauren [Fondahl.Lauren@epa.gov]; Johnny Gonzales [jgonzales@waterboards.ca.gov]; Decio, Ken [Ken.Decio@CalRecycle.ca.gov]; Holmes, Robert [Robert.Holmes@CalRecycle.ca.gov]; 'Bob Horowitz' [Robert.Horowitz@CalRecycle.ca.gov]; 'Pogue, Kyle' [Kyle.Pogue@CalRecycle.ca.gov]
Subject: FW: Revised anaerobic digestion, methane use, and low carbon transportation fuel
Attachments: CA Biogas Data 041714.xls

Hi all – I thought you would be interested in this update to the spreadsheet. It now includes low carbon transportation fuel production potential. I will be updating it as folks respond to me. Please let me know if you have any questions or comments. Thanks - Greg

From: Greg Kester [mailto:gkester@casaweb.org]
Sent: Thursday, April 17, 2014 9:06 AM
To: biosolids@lists.casaweb.org
Subject: Revised anaerobic digestion, methane use, and low carbon transportation fuel

Hello everyone – Please find attached a revised spreadsheet which I have previously shared. There are four tabs in the spreadsheet as follow:

Tab one – lists all wastewater plants in California with design flows greater than 1 MGD. This includes general information about each facility. The other tabs are subsets of this master list.

Tab two – Lists all wastewater plants in California with design flows greater than 1 MGD who employ anaerobic digestion. This tab includes whether methane is utilized, and if so how it is utilized. You will note that many entries are marked as Unknown, which simply means that this question was unanswered on a questionnaire. In most cases we can assume it means No. This tab also indicates whether or not hauled in organic waste such as FOG or food waste is received into anaerobic digestion.

Tab three – Lists all wastewater plants in California with design flows greater than 1 MGD who **do not** employ anaerobic digestion.

Tab four – Takes all of the facilities from tab two (those with anaerobic digestion) and makes conservative projections on how much electrical and thermal energy is currently produced, how much electrical and thermal energy could potentially be produced, how much gasoline and diesel gallon equivalent low carbon transportation fuel (LCTF) could be produced based on current energy production and how much LCTF could be produced based on future potential gas production. Note that current production was based on current average flow and potential production was based on design flow. We did not have both in some cases so in those instances we assumed they were the same.

Please review your facility and let me know of corrections that need to be made. A comparison of projected energy and fuel production to your own calculations is also greatly appreciated!

Some notes for your consideration: the electrical and thermal energy estimates are based on very conservative values from the 2011 US EPA Combined Heat and Power Partnership report (basically because it was published data and therefore citable). That report estimates electrical energy production of 26 kW per 1 MGD treated and thermal energy production of 2.4 Million BTUs per day per 1 MGD treated.

For the transportation fuel conversions I used the following from CARB:

1 kWh = 3412.96 BTU

Low Heating Value of Gasoline = 116,090 BTU/Gallon

Low Heating Value of Diesel = 128,450 BTU/Gallon

Any thoughts, comments, questions, and corrections you have on this spreadsheet is greatly appreciated! – Thanks very much - Greg

Greg Kester
California Association of Sanitation Agencies
Director of Renewable Resource Programs
1225 8th Street, Suite 595
Sacramento, CA 95814
PH: 916 446-0388
Mobile: 916 844-5262
gkester@casaweb.org
Ensuring Clean Water for California